CLAIMS

What is claimed is:

1. A method for detecting and suppressing extraneous radiation influences in radiometric measurements in which measurements are performed over a useable pulse amplitude spectrum, comprising:

defining a measurement channel (MK) that extends at least essentially over the entire usable pulse amplitude spectrum;

defining at least one substitute channel (EK) that encompasses only a fraction of the usable pulse amplitude spectrum;

calibrating the measurement channel (MK) and substitute channel (EK) in terms of identical variables;

defining a relation between the measurement values, defined by the respective pulse rates of the measurement channel (MK) and substitute channel (EK) such that a substantial variation from a nominal value occurs in the value of the relation when extraneous radiation is detected; and

performing a radiometric measurement and determining the value of the relation for the measurement values obtained during the measurement.

2. The method of claim 1, wherein the relation is the ratio of the calibrated variables of the measurement channel (MK) and substitute channel (EK).

3. The method of claim 1, wherein the fraction of the usable pulse amplitude spectrum is above a substantial portion of the pulse amplitude spectrum of extraneous radiation.

4. The method of claim 1, wherein a significant variation in the value of the relation is defined by a

first limit value above or below which an extraneous radiation detection signal is generated.

   5.   The method of claim 1 wherein when an extraneous radiation detection signal occurs, the substitute channel (EK) is utilized to form the measurement value.

   6.   The method of claim 1, wherein said radiometric measurement is performed to determine a fill level and said step of calibrating the measurement values of the measurement channel (MK) and substitute channel (EK) is effected by independent calibration functions each as a function of the fill level, such that at each fill level, the pulse rates of the measurement channel (MK) and substitute channel (EK) lead to the same measurement values when no extraneous radiation is present.

   7. The method of claim 6, wherein the identical variables include one of fill level and fill volume.

   8. The method of claim 1, wherein the relation is a ratio or difference.